

THE RIO NEWS.

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RIO DE JANEIRO, FEBRUARY 5TH, 1880

NUMBER 4

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MEMPHIS AND YELLOW FEVER.

The following comments upon the sanitary condition of Memphis, United States, which we extract from the New York *Evening Post* of December 5, were made by a prominent physician of New York who visited that city in November last in connection with the national board of health. This national board which was composed of the most experienced physicians, sanitary and civil engineers in the country, went to Memphis to study the causes of yellow fever in that city and to ascertain what measures could be taken to banish it from that terrible plague which has visited it with such fatal results in the last two summers. The results of this official inquiry have already been published and the recommendations made will be carried into effect during the present winter. The following discussion does not form a part of the report; it is the intelligent comment of one of the visiting physicians whose experience and high standing entitles his observations to a thoughtful consideration.

"The natural advantages for drainage in Memphis are excellent—better than those of New York. It should be one of the best drained cities in the country, whereas it is not drained at all. Every one knows that it sits on a bluff which slopes down to the Mississippi river on one side and to the gulfed stream, the Bayou Gayoso, on the other. This Bayou Gayoso is blamed for all the sickness that has occurred in that city; for there is thrown garbage and all conceivable species of filth; but there are miniature Bayou Gayosos in almost every street, alley and byway in Memphis which are infinitely more detrimental to the public health than the Bayou Gayoso. The Bayou Gayoso could easily be sewered and drained just like our covered sewers, its sides graded and sloped, and then it would be an ornament rather than an offence. Memphis is dirtier than I ever heard or dreamed of—dirtier than Havana, which is saying much. The only redeeming feature is that they have thrown the swill and garbage into the river since the frost last touched the city. But all the rest of the filth goes into the streets, which are never swept.

The greatest and most disgusting sanitary defect is that the large stores of the city, which can be counted by the hundreds, have no proper closets at all, but simply provide as substitutes pits in the cellars. From one to four such pits can be found in hundreds of the larger stores. Over many of the stores people live. The blocks of ground on which the stores stand are completely covered by the buildings, and this, I suppose, was the reason why the cellars were used in this manner. From the cellars arise the disease-generating odors which fill the buildings and come out through the sidewalk gratings, slaking the finger of death in the faces of passers by. These stores and wholesale establishments are owned, of course, by the largest capitalists and property-holders—the great rich men—of the city. They are the great cause of the epidemic. One man owns some of the largest stores in the city in the cellar of which are a number of these pits. He has no sanitary arrangements even in his private home. He owns hundreds of negro shanties which rent for \$1 to \$5 a month, and are absolutely destitute of sanitary provision. He is probably worth more than a million of dollars. The filthiness and meanness of such men in great part brought the plague upon Memphis. These are the causes of the sickness.

The usual position for the vaults for private houses with grounds is twenty or thirty feet away from the wells. Soakage takes place, and the contaminated well water is always used for cooking and washing and often for drinking. The city has inadequate water works to convey some of the splendid water from the Wolf river to the city, but there are no sewers and no closet system. Every acre of the Mississippi rises the Bayou Gayoso overflows into the Wolf, contaminating the entire water supply of the city, and the people drink the water just the same. An epidemic is therefore augmented by a rise of the Mississippi.

Very little bedding, clothing, furniture, carpets, etc., used by yellow fever patients has been destroyed. Storeroom upon storeroom is stacked with mattresses saturated with the poison of fever patients, and carpets, sofas and chairs stuffed with yellow fever germs. If the people were let alone they would use these filthy things. They have brought it all on themselves by deliberately preparing a post-hole to live in. One would expect cleaner habits from savages than they have practiced. The better class of negroes in the mule stables are the cleanest people of Memphis.

Pure earth, pure air, and pure water are the great sanitary requirements. Memphis gets plenty of pure air. The streets are broad, but there is pestilence in it because of the city's filth. The Wolf river water is among the best that has been analyzed, and if the water works were moved two or three miles up the river from their present position the city water supply would be pure always. The earth of Memphis is good clay and gravel, but every inch of ground under Memphis has been contaminated by its careless inhabitants. They want, first of all, several thousand brooms with which to sweep the cellars, streets, yards and alleys, and an adequate number of shovels, hoes and dirt carts to remove the sweepings. The inhabitants should be taught washing, scrubbing and cleaning as children are taught the alphabet. The street gutters should be put in order. They are now all of wood—except a few feet in isolated places—which is everywhere decayed and broken in, and many of the gutters are simply earth trenches two or three feet deep filled with filth, decomposing water, etc.

If the national health board has its way an epidemic will not revisit Memphis. It is decided definitely to stamp it out. The national board will recommend in its report the Waring system of sewerage and drainage which is doubtless the best, clearest and simplest for a small city, and least likely to get out of order, and this system, at a cost of \$250,000, will probably be put into Memphis. They cannot easily get this system out of order, and we know that they would destroy in a short time anything which could be injured. The whole cost of cleansing and redecorating the city will be \$1,000,000, and the United States can and will do the work by spring. The investigations are completed. The cleansing work will begin as soon as the cold weather sets in. At Memphis they have yellow fever the year round. They had a dozen cases in six days, while I was there that they did not report. Even when frost is in the ground, if you close up a building and light a fire you will get disease, because it is in the houses. The air of the place now is likely to make intermittent fever, measles, small-pox, scarlet fever, malarial fever, or any disease epidemic. If you put a spark of any disease into the place it will flash it over the city like fire on a prairie.

CONTAGIOUS FEVERS.

In view of the prevalence of contagious fevers at this season of the year, we give the following excerpts from an excellent article in *The Nineteenth Century*, for November, on the subject "Is Typhoid Fever Contagious," by Dr. T. J. Macnaghen. There is inevitably a great similarity in the treatment of transmissible diseases to prevent their communication to others, and the suggestions here given will therefore be found to be of the greatest service in this respect. As the transmissibility of epidemic yellow fever through various agencies is now well known it is clear that the advice given by Dr. Macnaghen will be found of the highest value in the treatment of that dangerous disease.

Typhoid fever is one of the most common of the serious ailments of civilized life. No household is safe against it; there is no family which it may not invade. In Great Britain alone not much short of 200,000 people suffer from it every year. Of these nearly 20,000 die, most of them in the prime of life. It is even more prevalent on the Continent.

The question of the contagiousness of such a disease is one of vital importance; and yet it is one on which the most antagonistic opinions are held.

Among the many ailments which may be transmitted from the sick to the healthy, the ones with which we are most familiar in this country, are those which are grouped together under the name of "the eruptive." To this group typhoid fever belongs. It includes also small-pox, typhus fever, scarlet fever, and measles. Each consists of an attack of more or less definite duration, and of a local inflammation or eruption: during the course of each its poison is largely reproduced in the system; and each may be transmitted from the sick to the healthy.

There are several ways in which a disease may be transmitted.

1. Its poison may be introduced directly by inoculation, as is daily done in the case of vaccination.

2. It may pass directly into the surrounding atmosphere from the persons of the sick, and be inhaled by those in their neighbourhood, as constantly happens in small-pox, typhus fever, measles, and scarlet fever.

3. It may be conveyed indirectly, and to a distance, in articles of clothing, bed linen, etc., and, passing from them, may be inhaled by those who wear or handle them, as often

happens in the same diseases. Or it may be conveyed in food or water, and enter the system through the digestive organs, as frequently happens with the poison of typhoid fever.

Contagion consists physically of minute solid particles. The process of contagion consists in the passage of these from the bodies of the sick into the surrounding atmosphere, and in the inhalation of one or more of them by those in the immediate neighbourhood. If contagion were a gas or vapour emanation, it would be equally diffused through the sick-room, and all who entered it would, if susceptible, suffer alike and inevitably. But such is not the case; for many people are exposed for weeks and months without suffering. Of two persons situated in exactly the same circumstances, and exposed in exactly the same degree to a given contagion, one may suffer, and the other escape. The explanation of this is that the little particles of contagion are irregularly scattered about in the atmosphere, so that the inhalation of one or more of them is purely a matter of chance, such chance bearing a direct relation to the number of particles which exist in a given cubic space. Suppose that a hundred germs are floating about in a room containing two thousand cubic feet of air. There is one germ for every twenty cubic feet. Naturally the germs will be most numerous in the immediate neighbourhood of their source, the person of the sufferer; but, excepting this one place, they may be pretty equally distributed through the room; or they may be very unequally distributed. A draught across the bed may carry them now to one side, now to the other. The mass of them may be near the ceiling, or near the floor. In a given twenty cubic feet, there may be a dozen germs, or there may be none at all. One who enters the room may inhale a germ before he has been in it ten minutes; or he may remain there for an hour without doing so. Double the number of germs and you double the danger. Diminish the size of the room by one half, and you do the same. Keep the windows shut, and you keep the germs in; open them, and they pass out with the changing air. Hence the importance of free ventilation; and hence one reason why fever should be treated, if possible, in large airy rooms. Not only is free ventilation good for the sufferer, but it diminishes the risk to the attendants.

We see in this, too, the reason for banishing bed-curtains, carpets, and all unnecessary furniture from the sick room in cases of contagious fever. The germs are apt to adhere to such articles, and so make them the means of conveying the disease to others.

The contagiousness of a given eruptive fever must be directly as the number of germs which, in a given time, pass from the body of a sufferer into the surrounding atmosphere. This, in its turn, must depend on the seat of the propagation of the poison, and on the relation which this bears to the atmosphere. In small-pox, scarlet fever, typhus fever, and measles, the seat of this propagation is the skin and mucous membrane of the air-passages; it is, therefore, in direct, free, and constant communication with the external air. The poisons of these diseases are accordingly freely given off into the atmosphere of the room in which the sufferer is, and they themselves are highly contagious.

In typhoid fever, the poison is propagated in the bowels, and is thrown off with the discharges from it. It thus passes from the system in a manner, and in a combination, which ensure its speedy removal from the neighbourhood of the sufferer. The typhoid germs are there; but they are mingled with discharges which may be removed, and as matter of course are removed, before the germs can pass off from them into the surrounding atmosphere. The seat of the propagation of the typhoid poison has no direct relation with this atmosphere; germs cannot pass directly from the one to the other; the disease, therefore, does not display the property of contagion.

The danger in typhoid fever is not contact with the person of the sufferer, but contact with his stools. If these are properly managed and disposed of, the disease can scarcely spread. But if they are allowed to pass into drains which are imperfectly trapped, the ground, or allowed to percolate through the soil into drinking water, then one case of typhoid fever may give rise to many others. The occurrence of a case of typhoid fever in a house is a sharp test of the efficiency of its sanitary arrangements. If these are perfect, and the stools properly managed, all will go well; if they are defective, one case may give rise to many others. But the communication of the diseases is not direct, by contact; it is indirect, by infection of drinking water, or in an atmosphere which may be remote from the person who is the source of the poison.

On this view of the nature and mode of action of contagion, it is easy to see, not only how the process of contagion and its varying phenomena may be explained, but how, by care, much may be done both to prevent the poison from passing into the atmosphere, and to diminish its chance of acting after it has got there. We have only to consider what is the chief channel by which the contagion gets exit from the system, to know by what means we are most likely to prevent its passing into the surrounding atmosphere. In typhoid fever the poison passes off in the stools; and what we have to do is to see that these are promptly and properly disinfected and disposed of. In small-pox, scarlet fever, typhus fever, and measles, it is eliminated by the skin, and we cannot altogether prevent its getting into the atmosphere; but by frequent sponging with some disinfecting fluid, or even with plain water, many germs may be arrested in their onward course.

The apostolic mode of anointing with oil is also an efficacious way of living and arresting the germs; it is specially useful during convalescence from scarlet fever in fixing the particles of peeling skin, which are a source of much danger. They are dangerous because they contain the germs which have been produced in them. What we see happen in the larger particles of skin happens also in many of the much smaller particles of contagion.

By the adoption of these various measures, by rigorously isolating the sufferer, and by having the room well ventilated, much, very much may be done to check the spread of contagious fevers. The matter of which organisms are composed is one of the most perishable things in nature. Contagion is no exception to the rule. By exposure to the air much of it is destroyed; hence such exposure is one of the best of all disinfectants. For one germ that comes to maturity, thousands perish. It is the same throughout Nature; for one acorn that produces an oak, for one rose seed that develops into a rose tree, for one ovum that develops into an animal, many thousands die. In her arrangements for ensuring the continuance of a species, Nature is almost wastefully lavish. In her arrangements for keeping its numbers within proper bounds, she is equally provident.

THE TEA AND COFFEE TAX.

The figures in regard to the repeal of the tea and coffee tax sent to the United States Congress, during its December session, by Secretary Sherman, show that with regard to tea during the years 1870, 1871 and 1872 the average value of this article varied from 30 to 3½ cents per pound. The rate of duty varied from 15 to 25 cents per pound, and the revenue received varied from \$3,000,000 to \$10,000,000 annually. During the calendar years from 1873 to 1878 inclusive, when the article was imported duty-free, its average value varied annually from 24 to 3½ cents per pound, and the estimated revenue which would have been increased by the government on the basis of former rates of duties would have been from \$8,000,000 to \$10,000,000 annually.

With regard to coffee, the average value during 1870, 1871 and 1872, varied from 10 to 11 cents per pound. The rate of duty varied from 3 to 3½ cents per pound, and the revenue received varied from \$5,500,000 to \$12,500,000 annually. From 1873 to 1879 inclusive, when coffee was imported duty-free, the average value per pound varied from 12½ to 16½ cents; and the estimated amount of duties which would have been received under rates of former years varied from \$8,500,000 to \$12,000,000 annually. It is seen therefore that the government lost some \$22,000,000 a year by the repeal of the tax, and that the price of the two articles increased instead of going down. The secretary recommends the reimposition of a moderate rate of duty, a recommendation which is cordially supported by the press of the country.

IMMIGRATION STATISTICS.—The returns of the United States commissioners of emigration show that for the year ending December 31, 1879, there were landed at Castle Garden a total of 175,589 immigrants, of whom 135,679 were aliens. In 1878 the total arrivals numbered 121,236, of whom 75,347 were aliens. During the month of December last there were landed at Castle Garden 9,249 immigrants, against 5,320 during the same month in 1878. The labor bureau during the past year provided employment for 31,014 males, and 5,517 females, the former including 1,379 mechanics and 9,685 agricultural and other laborers. In 1878 the number who procured employment amounted to 5,025 males and 4,945 females. The principal nationalities of the immigrants who arrived last year were Germany, 33,574; Ireland, 22,024; England, 21,555; Sweden, 12,594; Italy, 7,227; Scotland, 6,087; Norway, 4,973; Switzerland, 4,083; Russia, 3,103; France, 2,331.

On 1st Jan. 1878 there were 73,041 miles of railway in operation in the United States, which paid \$3,629,376 dollars in dividends.

THE RIO NEWS

PUBLISHED TRIMONTHLY

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RIO DE JANEIRO, FEBRUARY 5TH, 1880.

WE COMMENT the extract which we give in another column, relating to the recovery of damages from railway companies, to the attention of the Brazilian legal fraternity. This question of responsibility for injuries received in railway travelling is still one of the unsolved legal questions in Brazil, and in view of the late accident on the Dom Pedro II and the increasing amount of railway travel it is full time that its status should be determined. The reference of such questions to the courts has two advantages: it increases the importance of the legal tribunals and tends to make them more efficient and independent; and it imposes greater care in the management of railway lines and in some measure a wholesome check on the tendencies of such corporations to extend their power beyond the limits and responsibilities fixed by law. The highest interests of the Brazilian public demand that no railway manager shall feel himself at liberty to do as he pleases in the performance of a public service without feeling at the same time that he can be held to a strict accountability for the results of his management before a competent court of law.

UNDER THE head of "The State of the Finances and Taxation" a correspondent who signs himself "Junius" has been publishing a series of articles in the *entradados* of the *Jornal do Commercio*—a part usually devoted to communications supposed to be officially inspired. Were it not that "Junius" has made a gross misstatement with regard to the universally condemned *imposto do vinho*, we might have allowed these articles to pass unnoticed, but as a wanton perversion of facts has been added to support the sophisms of this writer we shall undertake to set the matter right. "This tax," says "Junius," "exists in France, in England, and in other countries." As for England there is no such tax in existence—nor could there be such a tax enforced. Just imagine the uproar there would be if an attempt were made to collect a halfpenny tax on the omnibus or street car fares in London, or in any of the large provincial towns in England! No ministry could withstand the storm of indignation which such a measure would call down upon them; no English cabinet minister at this day would dare to risk his position and career upon such a die. We repeat, there is no such tax in England. The only tax upon travelling is the passenger tax of five per cent, which is paid by the railway companies themselves upon certain trains only—for the cheap trains for the working classes and the so-called parliamentary trains which stop at all stations, are exempt from the tax. The sneer at the only foreign tramway line of this city in which "Junius" indulges, is therefore in as bad taste as it is ill-deserved; that line simply offered to transform the *vintem* tax into that form which the experience of the world has demonstrated to be best—it offered to pay the tax itself, thus making it a tax upon receipts, not upon expenditures. This offer the government refused, preferring to impose on the company the invidious task of collecting the tax from each passenger over and above his fare. As to "France" and the "other countries" where it is alleged that this tax is imposed, the assertion lacks the essential qualities of clearness and exactness. If "Junius" will cite one single instance where a tax is levied upon tramway and railway fares, the tax to be paid by

the passenger himself over and above the regular fare, he will strengthen his position infinitely more than he has thus far been able to do. In respect to the statement under consideration he has erred either through ignorance or intention, and is equally to blame in either case. If he has erred through ignorance he ought before he set himself to write such a labored defence of an obnoxious tax, to have been sure of his facts. If he has erred intentionally, then what is to be thought of such a writer, or of the cause which is driven to such a resort for defence?

It is now over three years since the city fathers came to the eminently wise conclusion that fixed axles should be forever abolished from the streets of Rio de Janeiro. It was a step forward in the path over which other nations had long since gone; it was a partial cutting adrift from the past. The destruction of this heirloom of an antiquated civilization, however, was only the first step; the aldermanic mind must find a substitute for the forbidden axle or our vehicles would have nothing upon which to rest their burdens. It was an easy task to decree the creaking, ungainly fixed axle out of existence, but it was another thing to supply its place; that required creative powers. And so the aldermanic mind began to grapple with the problem—as all aldermanic minds do—and a solution has finally been reached. We shall not refer to the first results attained—the adoption of a substitute and the decree imposing it upon all carmen—for that result is now a part of the forgotten past. It lives only in the memory of the firm who won the prize and lost it. An unsympathizing public, unmindful of the responsible labors of their municipal legislators and of the delicate position in which they were placed, called it a job, a monopoly, a robbery. The people filled the heavens and the *foral*, with their clamors, and the new municipal cart broke down. The city fathers then advertised for "models," they cared nothing for inventions nor inventors, they would ask no questions whence it came, whether it was, nor whether it was covered by an exclusive concession. They simply wanted models from which to choose the municipal cart—beyond that the matter rested with the gods and the imperial government. Nothing could be fairer, nor wiser, nor more innocent; it was the quintessence of disinterested solicitude in the welfare of the streets and in the problematical successor to the fixed axle. This disinterestedness of the aldermen was equalled only by that of the inventors; there was not a single individual on either side who was actuated by one selfish motive. Every man of them carried the city pavements, the cart mules, and the fixed axle in his bosom; their amelioration was the world in which he moved, the *summun bonum* of life. And so the models, all good and perfect, came in lavishly, and the choice was made on the 28th ult. It transpires that the lucky model holds a privilege from the imperial government, but that fortunately does not impair its efficiency. It follows that the old carts will be discarded and the cartmen will all be compelled to buy of Fernandes & Imatos, or go out of business, but happily that does not detract from the strict impartiality of the choice and the disinterested motives of the city councilors. There are some uneasy theorists who say that the city council should have contented itself with prescribing the general features of the new cart and leaving its construction to the open competition of the wagon-makers; but like all theorists they have overlooked the vital points at issue. Had this course been pursued there would have been no model adopted, and consequently there would have been a lack of uniformity in the details of painting and putting on the light rims. More than that, it would have necessitated the study of the question in aldermanic conclaves and the creation of an ideal model in the aldermanic mind upon which to base the specifications—and this could not be thought of. The cart of the future is now an accepted fact. Its adoption has fulfilled the anticipations of all thinking men.

THE MEASURE OF DAMAGES.

The readiness of railroad companies to settle damage claims privately has often surprised and grieved the injured person. He unhesitatingly gives up his bill for a leg broken or a nervous shock sustained, and the company pays it without hesitation. The huge damages of the Revere and Ashtabula disasters were

liberally adjusted outside the courts. The reason why the companies are so prompt to compensate persons for injuries clearly resulting from railroad carelessness is obvious. The companies by going further would surely fare worse. Juniors habitually hold companies responsible—sometimes unjustly—for damages received by passengers on trains. Large amounts have been awarded in several recent cases of this kind in the United States where the companies were foolish enough to stand trial. But none of the American verdicts will bear comparison with one lately found by a British jury. A physician having a large practice was disabled by an accident on the Southwestern Railway two years ago. The company chose to contest the sufferer's reasonable claim for damages. Whereupon he appealed to a jury who gave him £7,000. The plaintiff, having derived an income of several thousand pounds from his practice prior to the accident, and being then incapacitated from following his profession, thought the award too small. He applied for a new trial and got it, and the second jury gave him £16,000. Lord Chief-Justice Coleridge, who presided at the trial, expressed himself satisfied with this high finding. But the company thought it excessive. They in turn appealed. A third trial has now been refused. The company can carry their case still higher and finally into the House of Lords if they please. Perhaps they will do so, but only to find that the peers of the realm differ not from common mortals in their estimate of the value of health and limb to their possessors. In this universal disposition of mankind to hold railroad companies fully responsible for injuries inflicted on passengers by the fault of the former there is nothing vindictive. The companies have received from the public, free of expense, franchises of immense value. These favors and privileges which the companies convert so easily into golden profits are the measures of their public responsibilities. The railroads are able to pay, and will always be compelled by juries to pay handsomely for damages resulting from collisions, the breaking of bridges or other mishaps which could and should have been prevented by reasonable care and vigilance on the part of these corporations or their servants.—N. Y. *Journal of Commerce*, Dec. 24.

METEOROLOGICAL OBSERVATIONS TAKEN AT BRAZIL, S. PAULO, DURING 1879.

By the "Companhia Catheira e Esqadra."

Latitude 23° 35' S. Longitude 46° 35' W. of Greenwich.
Height of barometer, 935 feet above mean sea level.
Height of main gauge 2,375 feet above mean sea level.

Month	1	2	3	4	5	6	7	8	9	10	11	12
Barometer	29.95	29.95	29.95	29.95	29.95	29.95	29.95	29.95	29.95	29.95	29.95	29.95
Thermometer	72.0	72.0	72.0	72.0	72.0	72.0	72.0	72.0	72.0	72.0	72.0	72.0
Wet Bulb	68.0	68.0	68.0	68.0	68.0	68.0	68.0	68.0	68.0	68.0	68.0	68.0
Wind	N.E.	N.E.	N.E.	N.E.	N.E.	N.E.	N.E.	N.E.	N.E.	N.E.	N.E.	N.E.
Force	1	1	1	1	1	1	1	1	1	1	1	1
Clouds	0	0	0	0	0	0	0	0	0	0	0	0
Direction	N.E.	N.E.	N.E.	N.E.	N.E.	N.E.	N.E.	N.E.	N.E.	N.E.	N.E.	N.E.
Force	1	1	1	1	1	1	1	1	1	1	1	1
Thunder	0	0	0	0	0	0	0	0	0	0	0	0
Lightning	0	0	0	0	0	0	0	0	0	0	0	0
Rain	0	0	0	0	0	0	0	0	0	0	0	0
Direction	N.E.	N.E.	N.E.	N.E.	N.E.	N.E.	N.E.	N.E.	N.E.	N.E.	N.E.	N.E.
Force	1	1	1	1	1	1	1	1	1	1	1	1
Thunder	0	0	0	0	0	0	0	0	0	0	0	0
Lightning	0	0	0	0	0	0	0	0	0	0	0	0
Rain	0	0	0	0	0	0	0	0	0	0	0	0
Direction	N.E.	N.E.	N.E.	N.E.	N.E.	N.E.	N.E.	N.E.	N.E.	N.E.	N.E.	N.E.
Force	1	1	1	1	1	1	1	1	1	1	1	1

JANUARY.—Rain fell on 20 days.

FEBRUARY.—Rain fell on 14 days. Thunder and lightning were observed on the 18th and 20th. Lightning was seen on the evening of 17th. Fog occurred on the morning of the 26th. Dew on the mornings of the 26th and 28th and the evenings of the 27th and 28th. The highest reading of the maximum solar radiation thermometer in vacuo was 137° on the 21st. The lowest reading of the Grass minimum thermometer was 49° on the 6th.

MARCH.—Rain fell on 13 days. Thunder and lightning were observed on the 25th and 27th. Thunder was heard on the 20th, 19th and 20th. Lightning was seen on the 20th and 24th. Fog occurred on the mornings of the 20th, 21st, 24th, 25th and 29th. Dew on the mornings of the 1st, 22nd, 23rd, 27th and 29th; and on the evenings of the 9th, 20th, 21st, 22nd, 23rd, 24th and 25th. Highest reading of the maximum solar radiation thermometer in vacuo was 153° on the 18th. Lowest reading of Grass minimum thermometer was 44° on the 23rd.

APRIL.—Rain fell on 14 days. Thunder and lightning were observed on the 1st, 25th, 26th and 29th. Lightning was seen on the 18th. Fog occurred on the mornings of 8 days and evening of 1 day. Dew on the mornings of 13 days and evenings of 11 days. Lunar halo was observed from

9 to 10 p.m. on the 8th. Highest reading of maximum solar radiation thermometer in vacuo 146° on the 16th. Lowest reading of Grass minimum thermometer was 39° on the 10th.

MAY.—Rain fell on 5 days. Thunder and lightning were observed on the evening of the 6th. Lightning was seen on the evenings of the 10th and 20th. Fog occurred on the mornings of 5 days and evenings of 5 days. Dew on every morning during this month and on 22 evenings. Lunar coronas were observed at 8 p.m. on the 2nd, at 6 p.m. on the 3rd, and 9 p.m. on the 5th. Highest reading of the maximum solar radiation thermometer in vacuo 138° on the 1st. Lowest reading of the Grass minimum thermometer 25° on the 25th.

JUNE.—Rain fell on 7 days. Thunder and lightning were observed on the morning of the 7th and evening of the 26th. Lightning was seen on the evenings of the 6th and 25th. Fog occurred on the mornings of the 3rd, 6th, 11th, 12th, 16th and 17th, and the evening of the 10th. Dew on the mornings of 23 days and the evenings of 21 days. Hoar frost occurred on the nights of the 16th and 17th. Highest reading of the maximum solar radiation thermometer in vacuo was 130° on the 12th. Lowest reading of the Grass minimum thermometer was 18° on the 17th and 18th.

JULY.—Rain fell on only 3 days. Thunder and lightning were observed from 3 to 4 a.m. on the 12th. Fog occurred on the mornings of the 1st, 17th, 13th, 14th and 15th, and evenings of the 3rd, 10th, 13th and 26th. Dew on the mornings of 25 days and evenings of 27 days. Lunar halo was observed at 9 p.m. on the 4th. Highest reading of the maximum solar radiation thermometer in vacuo was 138° on the 25th. Lowest reading of the Grass minimum thermometer was 24° on the 8th.

AUGUST.—Rain fell on 3 days only. Lightning was seen on the evening of the 8th. Fog occurred on the mornings of the 1st, 12th, 13th, 16th, 20th, 21st and 22nd, and on the evenings of the 15th and 16th. Dew on the mornings of 13 days and evenings of 20 days. Dust haze (Hohenrauch) was observed on the evening of the 21st and 22nd. Highest reading of maximum solar radiation thermometer in vacuo 135° on the 4th, 5th and 31st. Lowest reading of the Grass minimum thermometer was 22° on the 11th. Highest reading of barometer observed was 17.958 on the 15th at 9 a.m. Lowest reading of barometer observed was 27.577 on the 10th at 9 a.m.

SEPTEMBER.—Rain fell on 10 days. Thunder and lightning were observed on the 15th and 28th. Fog occurred on the mornings of 4th, 15th and 28th. Dew on the mornings of 1st, 2nd, 5th, 6th, 14th and 30th, and the evenings of the 1st, 2nd, 3rd, 4th, 5th, 8th, 20th, 24th, 26th, 27th and 30th. Haze all day on the 4th. Highest reading of maximum solar radiation thermometer in vacuo was 142° on the 25th. Lowest reading of Grass minimum was 16° on the 9th. Highest reading of barometer observed was 27.883 at 9 a.m. on the 10th. Lowest reading of barometer observed was 27.494 at 9 p.m. on the 28th.

OCTOBER.—Rain fell on 5 days. Thunder and lightning were observed on the 15th and 28th. Fog occurred on the mornings of 6th and 13th and during the evening and night of the 5th. Dew on the mornings of 2 days and evenings of 14 days. Lunar halo was observed at 7.30 p.m. on the 29th. Lowest reading of Grass minimum thermometer was 30° on the 26th. Highest reading of the barometer observed was 27.920 at 9 a.m. on the 5th. Lowest reading of the barometer observed was 27.322 at 9 a.m. on the 23rd.

NOVEMBER.—Rain fell on 8 days. Thunder and lightning were observed on the 2nd, 12th, 29th and 30th. Thunder heard on the 26th. Lightning seen on the 10th. Dew occurred on the mornings of 4 days and evenings of 13 days. Lunar halo was observed at 9 p.m. on the 29th. Lowest reading of Grass minimum thermometer was 35° on the 19th. Lowest reading of the barometer observed was 27.476 at 9 p.m. on the 23rd. Highest reading of the barometer observed was 27.736 at 9 a.m. on the 9th.

DECEMBER.—Rain fell on 18 days. Thunder and lightning were observed on the 10th, 11th, 14th, 26th, 27th and 31st. Thunder heard on the 2nd, 5th, 28th, 30th and 31st. Fog occurred on the mornings of 23rd and 24th. Dew on the mornings of 14th and on the evenings of 2nd, 5th, 7th, 8th, 22nd, 23rd, 24th and 28th. Lowest reading of Grass minimum thermometer was 40° on the 4th and 5th. Highest reading of barometer observed was 27.768 at 9 a.m. on the 21st. Lowest reading of barometer observed was 27.445 at 9 p.m. on the 15th.

During the year there were 120 days on which rain fell.

HENRY B. JOYNEK.

A.N.I.C.E., F.R.G.S. & F.M.S.

Engineer in chief.

LOCAL NOTES

—Fifty-seven lotteries are authorized by the imperial government for the year 1880.

—According to the New York *Herald* General Grant will visit Brazil and the Platine republics during the coming winter.

—We see by the *Jornal do Commercio* that Mr. Henry Horn arrived from the United States on the *City of Paris*, and that he intends to establish a manufactory of fine porcelain in this city.

—The papal nuncio, Monsignor Angelo di Pietro, envoy extraordinary from the Holy See, was received in public audience at São Christovão on the 23rd ult.

—The officers of the Senate met on the 29th for the purpose of taking appropriate measures on the death of Visconde de Saussana, senator from Pernambuco.

—The carnival occurs next Sunday, Monday and Tuesday. The societies are said to be making elaborate preparations.

—The number of animals killed in the public slaughter house of this city in January amounted to 9,633 head. This included 79 calves, 1,861 hogs and 1,353 sheep.

—The shipments of cotton goods from New York to Brazil during the calendar year 1879 amounted to 7,988 bales and 145 cases. This is an increase of 2,045 bales over the shipments of 1878.

—The Royal Mail packets *Elle*, outward bound, and *Nova*, homeward bound, arrived at Lisbon on the 27th ult. The *Elle* sailed for Brazilian ports on the same day.

—The birthday of our majesty, the Empress, which occurs on the 14th of next month, has been selected for the inauguration of the new water works.

—A circular from the chief of police of the 26th ult. directs the police officials to exercise a close supervision over the *artigos e estalagens* in the city in order to compel a rigorous observance of sanitary regulations. The inspectors are instructed to visit these places every day.

—Mr. R. C. Shannon, of the Botanical Garden railway, transmitted 200\$ to Sr. Octaviano Hadson, on the 26th ult., for the support of the Gloria night school. The donation was made in memory of the late president of the company, C. B. Greenough, Esq.

—In view of the frequency of thefts and burglaries in various parts of the city, and the efforts of the police to confiscate all species of arms kept by the people in their houses, we shall soon be able to say that there is no security for property in Rio de Janeiro.

—A saucy boy was punished in one of the schools of this city a few days ago. It has been worth about a column a day to the *Jornal* ever since. This incident of conducting a dispute is a grand thing for a newspaper's balance sheet, but it's a trying affliction to the public.

—The coasting steamer *Calhoun* took 63 immigrants for Porto Alegre on the 23rd ult., and the *S. José* 92 for Santos. Of these immigrants 123 were Italians and 27 Portuguese. On the 28th the *Rio de Janeiro* left with 122 Italians from Porto Alegre, 133 for Santos, 25 for Santa Catharina, and one for Paranaíba.

—The Portuguese bark *Africa* which arrived at this port on the 27th ult. from Oporto, Portugal, brought out seven girls who had contracted with the cook to come here as domestics. The intention was to betray them into a life of prostitution. The cook and an individual waiting to receive the girls were arrested on the arrival of the bark.

—A fight took place at an *estalagem*, No. 21 Rua de São Lourenço, on the evening of the 28th ult., between Francisco da Silva and João Baptista da Silva. The result was that João Baptista called a *clasp-knife* to his assistance and Francisco withdrew for medical advice. He died the next day at the Misericórdia. João Baptista undertook to "evade himself" but failed.

—On the 1st of August last Ernest Ohlhausen entered a house in Rua de Santo Amaro and stole four gas globes. He was caught in the act. He explained to the jury on the 29th ult. that he was going up the street on the day in question to see a friend, and, when stopping to see a quarrel that was taking place on the street, was captured. Ernesto was discharged.

—We are glad to see that our old friend, Mr. Morris N. Kohn, is again to the front. This time he has a project for the erection of some buildings in the Campo d'Acclimação without cost to the public treasury, but the government has unfeelingly deferred considering it. It is unfortunate, but it can't be helped. No nation can support more than a very limited number of philanthropists at one time, and Morris must wait for a vacancy in Brazil.

—Gregório Moreira Maia wants a privilege from the city council to stamp and number the new carts. Of course he should have it; the more jobs the more money. It matters little that it will add to the expense of the cart, that it is unnecessary as the privileged manufacturer could put the number on the cart himself, and that it will serve to complicate the business just a little more—it's all in the interest of the leeches, and why should not the poor devil of a cartman pay it?

—The *Gazeta de Notícias* called attention to a case the other day where a burial permit for a yellow fever victim could not be procured at the Misericórdia because the office was closed. The physician's certificate stated that the body should be buried with dispatch, but this could not be done until the next day. On the 27th the minister of finance directed the hospital authorities that they should hold themselves ready to grant burial permits and to expedite burials at all hours.

—We have before called attention to the dangers arising from the existence of a large number of cow stables in the most densely-populated parts of this city. Now that we see dangers from yellow and pernicious fevers are daily increasing, would it not be well for the board of health to see that they are removed or kept thoroughly clean? The stench from these places is intolerable and can not be otherwise than productive of fevers of the most deadly description.

—The poor Italian, Nicolas Gasso, who died on board the French packet *Salvador* at Buenos Ayres on the 17th ult., caused a great fright among the people of that city. According to Dr. Dillan, of the *Salvador*, he died from a lung complaint, but according to the medical commission of the port he died from yellow fever. It is a curious fact that the opinion of this commission was based on an observation of the body from a distance of ten or twelve yards and as the man's skin presented a yellow appearance it was at once pronounced a case of yellow fever.

PROVINCIAL NOTES

—A large hotel is now under construction at Deserto, Santa Catharina.

—A balance of 310,230\$191 is said to be in the provincial treasury of the Amazonas.

—The preliminary session of the provincial assembly of São Paulo took place on the 27th ult.

—The present number of convicts on the island of Fernando de Noronha is 1,726. The total population of the island is 2,554.

—The total number of cattle received at the slaughter houses of Píloas, Rio Grande do Sul, up to the close of the 21st ult. was 39,179 head.

—Up to the 15th ult. of the present season, 46,762 head of cattle had been killed in the slaughter houses of Montevideo.

—The receipts of the Mandos custom house for December were 10,774\$256, and of the collector's office 117,766\$799.

—Advices from Malto Grosso state that the new import of 5 per cent. on official salaries of 1,000\$ and upwards, has caused great discontent in that province.

—It is reported that the Italian government intend to select the port of Deserto, Santa Catharina, as the headquarters of its South Atlantic squadron.

—The sanitary state of Chapala, Marañon, is reported very bad. The people are suffering greatly from want, and from material and hygienic evils.

—Consul José Antonio Saravia arrived at Bahia from Europe on the 27th ult. while he was during the last session of the General Assembly for the recovery of his health.

—A road is being cut through the island of Arvoredo, on the northern frontier of Santa Catharina, from the landing place to the locality selected for a new light-house.

—A letter to the *Journal de Commercio* from Bahia do Norte, dated January 14, says that the state will continue with great vigor and that the people are enjoying great happiness.

—Samples of copper have been sent to this city from the Jazmín mines in Malto Grosso. The mines are said to be very rich in copper, but the report should be received with some allowance until a competent survey can be made.

—In the interior towns of Rio Grande do Sul there are published twice newspapers. In Porto Alegre there are five daily papers, in Rio Grande five, and in Pelotas three, besides several weekly papers.

—A woman named Jannaria, a slave of Sr. Ignacio José Gomes de Aguiar, parish of Campo Grande, was killed by a thunderbolt on the 25th ult. She was standing at a window, and was killed instantly.

—The *Chorographo* of Cantagallo, of the 25th ult., relates that a frivolous quarrel took place there on the 5th between two men named Mariano and Reis. It resulted in a wound for Mariano and death for Reis.

—A party of Ceará refugees created a disturbance in Píloas, Maranhão, on the 18th and 20th of December last. After parading the streets of the town, armed with knives, clubs, etc., they were finally driven away.

—José Elias and Manoel Simplicio, of Parahyba, got into a quarrel one day last month. José then went to the delegation of Guyana and gave information that he had assisted the said Manoel in several robberies, and in killing an Italian.

—The officer in command of the Malto Grosso frontier has been authorized to raise a force of militia for frontier guards. They will be enlisted for a time not less than one year and will be stationed along the right bank of the Rio Apa, the boundary between Paraguay and Malto Grosso.

—On the morning of the 28th ult. Sr. Francisco de Paula Cavalcante de Albuquerque, Visconde de Sinesma, senator from the province of Pernambuco, died at his home in that city after an illness of some duration. He was the eldest member of the Senate at the time of his death, having been appointed by an imperial letter dated October 29, 1879.

—Two laborers, Joaquim José de Oliveira and Antonio Makhado da Silveira, got into a quarrel at Cachoeira, Rio Grande do Sul, on the 24th ult. Antonio had a large knife with which he attacked Joaquim, inflicting a fatal wound. The latter succeeded in knocking his antagonist down with a whip handle and then, getting possession of the knife, killed him with it. Joaquim died four hours later.

—According to the *Gazete* of Victoria, Espírito Santo, Captain Antonio Martin de Araújo Neco was killed on the 28th ult. by a shot from an arm-bow. The murder took place at a place called Betim, in the parish of S. José do Quindim. The police proceeded to the place where the crime was committed, succeeded in capturing one José Pinto de Moraes who afterwards confessed his guilt.

—According to the *Dorô* of Bahia of the 29th ult., the small boat, *Gulda Gula*, with which two adventurous Americans, H. B. Inman and A. B. Cum, are trying to reach Australia, arrived at Asa de Yore on the afternoon of the 19th ult. The *Golden Gate* left Southampton, Cape Verde, on the 17th of September, but through contrary winds and seas it was driven across the Atlantic to the Brazilian coast. The two men are said to have had no other food during the twenty-five days previous to their landing at Asa de Yore but the sole of a slipper. They were unable to walk through exhaustion. They arrived at Bahia on the 27th and were properly cared for by the American consul.

RAILROAD NOTES.

—A concession has been granted to Mr. Charles Albert Mowling for a railway line running from Botafogo down the coast of Angra dos Reis. The line is to pass through Guarilhon, Itaguary and Santa Cruz.

—The receipts of the "Paulista" railway during the month of November last were 275,057\$810, expenses 67,294\$154, balance 207,763\$656. The excess of receipts over expenses from July 1, to November amounted to 721,872\$573.

—A telegram from Pernambuco to the *Cruzeiro* says the receipts for the passages on the Recife e São Francisco road have decreased very sensibly since the tropical law went into effect. Many of the passengers who formerly traveled first class now go as second class.

—The receipts of the Baturité railway in November last were 25,253\$775 and the expenses 13,160\$065, not including 12,620\$686 incurred in the gravitons transportation of goods, and 495\$155 incurred in transporting material for the extension of the line.

—The suburban railway line of "Olinda e Belém," Pernambuco, received 171,262\$850 during the year 1879, expended 122,533\$900, balance remaining 48,728\$850. The traffic for the year amounted to 901,661½ passengers, 608 tons of baggage, and 430 tons of merchandise.

—Four vessels have left Rotterdam with mails and plant for the Paulo Afonso road. Of these one was on account on the 7th on the 10th Koling reef, on the coast of the province of Alagoas. The ship and cargo were saved. Two others have reached the mouth of the São Francisco river, and the fourth remains to be heard from.

—Contracts were signed on the 12th ult. by the president of São Paulo and Col. Joaquim Olympe Sarria de Cavalhin for the construction of two railway lines—one running from Lorena to Inajá, Minas Geraes; the other from São Paulo to Piracicaba, on the Duas Fozes line, to Marília, near Paraná. The first has a concession for 50 years, and the second for 50 years.

—The *London Times* of Dec. 19 (weekly ed.) has the following: The Court of Appeals has refused to grant a new trial to the defendant in the action brought by Dr. Phillips against the London and South Western Railway and in which favor a verdict for 216,000 has been returned on account of severe injuries sustained in a collision on that line.

—During the month of December last the Dum Polier II railway carried 226,182 passengers, 833 tons of baggage, 22,894½ tons of freight, and 4,477 animals. The total receipts were 959,628\$198. During the same month of 1878 the railway carried 191,666½ passengers, 604½ tons of baggage, 23,681½ tons of freight, and 3,600 animals. The total receipts were 895,498\$373.

—The provincial government of São Paulo has approved the plans of the first 12 kilometers of the Sorocabana railway prolongation from Ilhaeaven to Ilhaeaven. It is said that the work of constructing this section will be begun in a few days. In compliance with the wishes of the people of Tietê the board of directors of this company has resolved to make the preliminary surveys between Boetava and that place at an early day.

—The receipts of the "Recife e São Francisco" railway for December were 127,489\$778, expenses 109,953\$354, balance in the unpaid toward interest guarantee 17,535\$424. The traffic amounted to 22,799 passengers, 130 tons of baggage, 10,043½ tons of freight, and 508 animals. This included 494 passengers and two tons of baggage transported on government account. The freight traffic included 7,679 tons of sugar and 6½ tons of cotton.

—The receipts of the "Macacoe e Campos" railway during the six months ending December 31 were 691,224\$300; expenditures 352,120\$959; balance 339,103\$341. The number of passengers carried was 15,207; baggage, 252½ tons; freight, 35,420 tons. The amount of coffee carried was 15,448½ tons, and of sugar 10,721 tons. The rates charged during the year averaged per kilogram per kilometer, 299 reis on baggage, 656 reis on coffee, 642 reis on sugar, and 655.7 reis on general freight.

—A meeting of the shareholders of the São Paulo and Rio de Janeiro Railway Company was held in this city on the 31st ult. The purpose of the meeting was to ratify the acts of the meeting of October 10th relative to the removal of the seat of the company to the city of São Paulo which had been revoked by a subsequent meeting of a minority of the shareholders. After a protracted debate the acts of the meeting of October 10th were ratified by a vote of about three to one.

THE OFFICIAL estimates of the amount and value of the crops of the United States for 1879 are as follows:

	Product.	Value.
Wheat	bushels 418,755,000	\$100,000,000
Oats	" 1,594,599,000	\$50,250,000
Rye	" 204,553,000	100,000,000
Barley	" 23,645,000	10,000,000
Indian	" 40,184,000	\$2,500,000
Blackwheat	" 13,145,000	7,600,000
Cotton	" 4,000,000	22,000,000
Tobacco	pounds 38,000,000	51,455,521
Hay	tons 35,604,000	32,851,000
Peaches	bushels 181,280,000	\$8,200,000

The total value of the crops mentioned was \$41,994,466\$656 the total value of the same crops in 1878 was \$41,488,370\$865. As this total does not include the value of the rice, sugar, fruits, and small crops, some of which as the first product amount to a very large sum, the total above given must be taken as largely below the actual value of all the agricultural products of the country. Adding these and the value of the wool clip, and the products of the dairy and stock farms, and it will be found that the one year's products largely exceed the national debt.

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City of Rio de Janeiro	Capt. Lupton	Feb. 28	Mar. 5
City of Pará	Capt. Carpenter	Mar. 28	Apr. 5
City of Rio de Janeiro	Capt. Lupton	Apr. 28	May 5

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THOS. H. FREELAND, Secretary.

E. MYERS, Asst. Secretary.

C. L. VANZANT, Vice-President and Gen. Mgr.

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